Landbird Monitoring Protocol for Klamath Network Parks

Standard Operating Procedure (SOP) #16: Data Transfer, Storage, and Archive

Version 1.0

Revision History Log:

Previous Version	Revision Date	Author	Changes Made	Reason for Change	New Version

This SOP explains the procedures for data transfer to the Network Data Manager. In addition, data certification, storage, archiving, and a timeline for project deliverables are addressed.

Data Transfer

All project deliverables, including but not limited to raw data, processed data, Metadata Interview Forms, updated data dictionary (if necessary), images with metadata, training logs, datasheets, spatial files, and Certification Forms will be transferred to the KLMN Data Manager following the timeline listed in Table 1. It is the responsibility of the Project Lead to ensure all products and associated documentation are delivered following the outlined timeline.

Certification Form

The Klamath Network will utilize a Certification Form submitted by the Project Lead to ensure:

1. The data are complete for the period of time indicated on the form.
2. The data have undergone the quality assurance checks indicated in the Landbird Monitoring Protocol.
3. Metadata for all data has been provided (when applicable).
4. Project timelines are being followed and all products from the field season have been submitted.
5. The correct level of sensitivity is associated with the deliverables.

A new Certification Form should be submitted each time a product is submitted. If multiple products are submitted at the same time, only one Certification Form is needed for those products. Certification Forms can be obtained from the KLMN Internet and Intranet web sites or by contacting the KLMN Data Manager. An example of the Certification Form is included at the end of this SOP.

Field Forms

Hardcopies of the datasheets will be provided to the KLMN Data Manager following the timeline in Table 1. It is the responsibility of the Data Manager to scan the datasheets into PDF

documents within 1 month of receiving the hardcopies. The datasheets will be organized in the order in which they will be scanned when they are transferred to the Data Manager (SOP #10: Post Field Season).

a. For point count surveys, this will include four forms for each route: site description, species checklist, point count, and vegetation. They should be organized alphabetically by route name and by park. Each route will become a PDF document.
b. For mist netting, the banding data will be organized by band size and date for all birds that received new bands. Unbanded birds and birds that were recaptured (already banded) will be organized by date. All banding data will be scanned into a single PDF document.
c. For Banding Journal Forms, species checklists, and area search surveys (associated with mist netting), the data forms will be organized chronologically by site and filed alphabetically by site name and by park. Each site will become a single PDF document.

The scanned document will be named with the park code, site name, a description of the form, and the year the data represents. For example, the scanned document associated with point counts in Lava Beds National Monument would be named LAVO_LB20_PC_2008, where "LAVO" is the park code, "LB20" is the name of the route, "PC" is for point counts, and 2008 is the year the data were collected.

Electronic files will be stored in the data folder located in the landbird project folder on the KLMN server. Additional details on storage methods are described below. In addition, a copy of all PDF files will be sent to the Project Lead within 1 month of receiving the hardcopy datasheets.

Databases

Six Access databases are used to store data while in the field. They are associated with the four survey methods, vegetation sampling method, and the location information (SOP#12: Data Entry). Data in the databases will be provided to the Network Data Manager annually, along with reviewed and/or updated Metadata Interview Forms and data dictionaries (SOP #14: Metadata Guidelines). Prior to being transferred, the data will be subjected to all QA/QC process described in SOP #13: Data Validation and Verification. Hardcopies of the digital error logs and data entry logs will be provided with the databases. Data from the databases will be transferred as six .dbf files (see format below) and uploaded into the KLMN Landbird database. The KLMN Landbird database is a relational database that incorporates the six databases used to store field data and is designed following the NPS Natural Resource Database Template.

The flat files will be named using a six character code representing the survey type, the Network, and the year the data were collected. Formats are:
Area Search Surveys: ASKNXX where the XX represents the two digit year
Mist Netting: BDKNXX where the XX represents the two digit year
Point Count Surveys: VRKNXX where the XX represents the two digit year
Species Checklist: SCKNXX where the XX represents the two digit year
Vegetation Surveys: VGKNXX where the XX represents the two digit year

SOP #16: Data Transfer, Storage, and Archive (continued).

The location file will be transferred after the initial field season and will be transferred in subsequent years only if it has been updated (SOP #4: Locating and Marking Field Sites has details about re-marking locations). The location file will be named according to the following convention: Location Data: WPKN.

The bird and vegetation species code lists will be transferred to KLMN annually to be incorporated into the KLMN database.

Photos

Images and associated metadata will be transferred to the Data Manager in the format explained in SOP #11: Photo Management.

GPS Waypoint Files

GPS waypoint files are created using Waypoint Express as described in SOP #3: Using the Global Positioning System. These text files and associated GIS layers will be transferred to the Network Data Manager, who will store them in the Landbird_GIS folder, a subfolder of the Landbird project folder as described below. Waypoint files will be transferred prior to starting the first field season and in subsequent years if new locations are added or if the spatial information of a location is adjusted.

Training and Contact Information

Prior to implementing field work, a list of contact information for each person involved in the Landbird project will need to be submitted to the KLMN Data Manager. Contact information will include:

- First Name
- Last Name
- Middle Initial
- Organization
- Position Title
- Mailing Address
- Email Address
- Work Phone Number

Each person conducting field work as part of this protocol will need to follow the training procedures outlined in SOP #2: Training Observers. Log books developed in a standardized Excel format will need to be delivered to the Network Data Manager following the timeline listed above.

Reports

There is the potential for a variety of reports to be developing utilizing data collected as part of this landbird monitoring project, including annual reports, three-year analysis and synthesis reports, scientific publications, one page summary reports, and comprehensive reports.

SOP #16: Data Transfer, Storage, and Archive (continued).

Annual effort reports and analysis reports will be the responsibility of the Project Lead and should be submitted in the NPS Technical Report Series format, unless utilizing another series format for publication.

The comprehensive report described in SOP #17: Analyses and Reporting and any scientific publications created by Network staff or by any staff member working on the landbird project should be submitted to the KLMN Data Manager upon completion.

Summary reports are one page reports completed by the Network staff that and are used to sum up information in the annual and analyses reports. These reports should be completed within 1 month of receiving the annual or analyses reports. These reports will be sent to all park employees and will provide links to the larger reports.

Data Storage

Project folders have been created for each monitoring protocol the KLMN plans to implement (Figure 1). Project folders contain five standard folders using a naming convention that includes the project title and one of the following: Documents, GIS, Data, Images, or Analysis. These five folders will contain all the data and information for a project as follows:

a) **Landbird_Documents.** This folder contains the reports, budgets, work plans, emails, protocols, contracts, datasheets, and agreements associated with a specific project.
b) **Landbird_GIS.** This folder contains shapefiles, coverages, layer files, geodatabases, GPS files, GIS/GPS associated metadata, and spatial imagery associated with a project.
c) **Landbird_Data.** This folder contains the KLMN Landbird database and .dbf files from the six field databases.
d) **Landbird_Images.** This folder contains any photographs related to the project and associated image metadata. In addition, copies of all photographs and metadata will be transferred into the KLMN Image database. Details on the KLMN Image database can be found in the KLMN Data Management Plan.
e) **Landbird_Analysis.** This folder will contain derived data and associated metadata created during analysis.

SOP #16: Data Transfer, Storage, and Archive (continued).

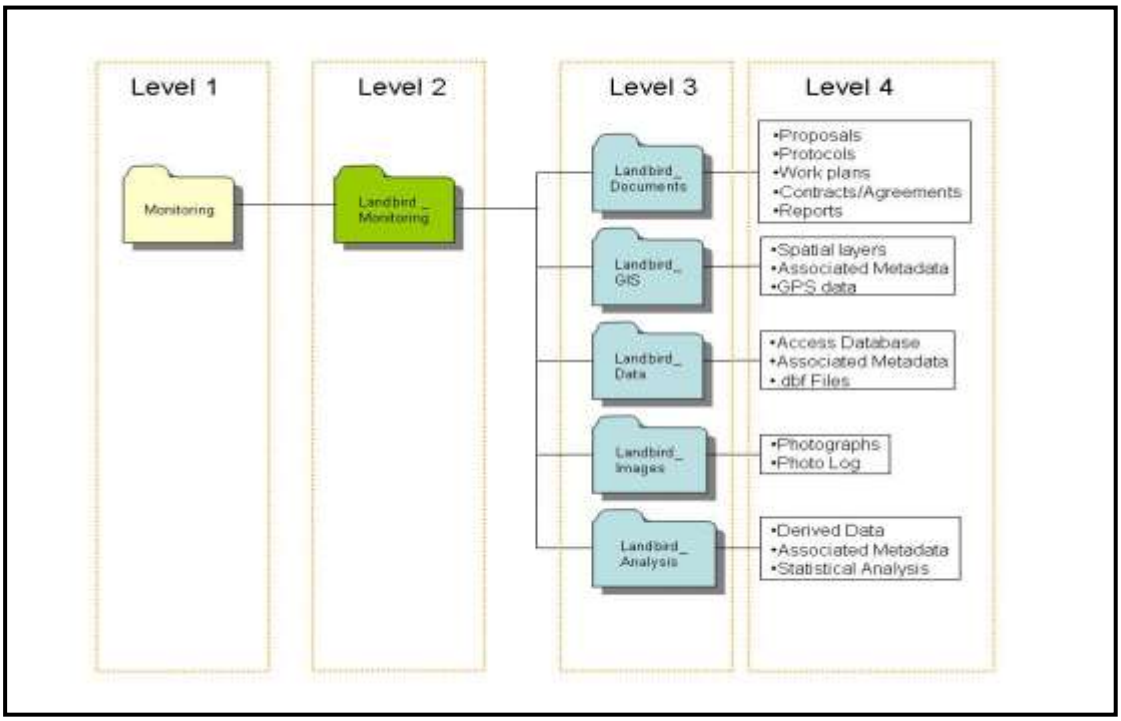

Figure 1. The landbird file structure the KLMN will use to store all landbird data and information.

Core Network staff will have read-only access to all products to prevent changes to the information. If write access is needed, you will need to contact the Network Data Manager. It is the responsibility of all KLMN staff to inform the Data Manager when they have added new material to the project folder.

Storage, Backup, and Archiving

A copy of the project folder will be stored in the KLMN Archive drive whenever any new information is added to the folder. The KLMN Archive and Network drives are subject to all backup and archiving process described in the KLMN Data Management Plan. The KLMN relies on Southern Oregon University (SOU) for the backup and long-term storage requirements. Nightly backups are done by SOU to store information that has been edited. This is not a full backup but is intended to protect products that have been manipulated. This information is stored for a 1 week period before it is recycled. SOU begins a weekly full backup of their servers on every Friday and stores the files on tape drives. Backups are stored for 60 days before the tapes are reused. SOU will run quarterly backups on March 31st, June 30th, October 31st, and December 31st of each year. Files stored on a quarterly basis are maintained for one year before being recycled (Mohren 2007).

Despite the QA/QC measures in place, finding errors in datasets in the future is inevitable. The process for documenting the correction of such errors is detailed in SOP #13: Data Validation

and Verification. In such instances, archived data will not be corrected; however, an updated product will be placed into the archive drive along with the digital error and entry logs.

Table 1. Deliverable products, responsible individual, data due, and store location for all products developed while implementing the KLMN Landbird Monitoring Protocol.

Deliverable Product	Primary Responsibility	Target Date	Instructions for KLMN
Contact Information	Project Lead	two weeks prior to the start of the field season	KLMN Landbird Database Stored in the Landbird_Data Folder.
Processed GPS Data Files	Project Lead	Prior to beginning the first field season and by Mar 1st of the following year when updates occur	Store in Landbird_GIS[5]
Waypoint Tracking Form and Files	Project Lead	Prior to beginning the first field season and by Mar 1st of the following year when updates occur	Store in Landbird_GIS[5]
Metadata Interview Form	Project Lead	Prior to beginning the first field season and by Mar 1st of the following year when updates occur	Store in Landbird_Data[5], Use to create and revise full metadata.
Updated Data Dictionary	Project Lead	Prior to beginning the first field season and by Mar 1st of the following year when updates occur	Store in Landbird_Data[5], Use to create and revise full metadata.
Full Metadata (Parsed XML)	Network Data Manager	Prior to beginning the first field season and by March 1st of the following year	Store in Landbird_Data[5], Upload the Parsed XML Record to the NPS Data Store [2]
Protocol Changes (if made)	Principal Investigator and Network Contact	Mar 1st prior to implementing the change	Store in Landbird_Document[5], Update Protocol on Web sites and NPS Data Store, Send Copy to Parks
Data Certification Report	Project Lead	every time a product(s) is submitted	Store in Landbird_Document[5]
Field Data Forms (Route, Marker, Point Count, Mist-Net, Area Search, Checklist, Banding, Vegetation, Site)	Project Lead	Mar 1st of the following year	Scan Original, Marked-up Field Forms as PDF Files and Store in Landbird_Document[5]
Digital Error Log	Project Lead	Mar 1st of the following year	Scan Original, Marked-up Field Forms as PDF Files and Store in Landbird_Document[5]
Databases	Project Lead	Mar 1st of the following year	Store in Landbird_Data[5], Send Copy to Parks
Training Excel Spreadsheet	Project Lead	Mar 1st of the following year	Scan Original, Marked-up Field Forms as PDF Files and Store in Landbird_Document[5]

SOP #16: Data Transfer, Storage, and Archive (continued).

Table 1. Deliverable products, responsible individual, due data, and store location for all products developed while implementing the KLMN Landbird Monitoring Protocol (continued).

Deliverable Product	Primary Responsibility	Target Date	Instructions for KLMN
Digital Photographs and Metadata	Project Lead	Mar 1st of the following year	Store in Landbird_Image[5], Copies of Photographs in KLMN Image Library, Copies of Image Metadata into KLMN Image Database linked to Photographs
Annual Report	Project Lead	Mar 1st of the following year	Store in Landbird_Document[5], Upload to NPS Data Store[2], Send Copy to Parks, Post on the KLMN Internet and Intranet Web sites
Three Year Analyses and Synthesis Report	Principal Investigator	Every three years on April 1st	
Other Publications	NPS Staff, Principal Investigator	as completed	
Regional Effort Report	Project Lead	Feb 1st of the following year	Store in Landbird_Document[5], Send Copy to Parks, Post on the KLMN Internet and Intranet Web sites
Other Records	Network Contact	review for retention every April 1st	Digital Files that are Slated for Permanent Retention Should be Uploaded to the KLMN Landbird Project Folder. Retain or Dispose of Records Following NPS Director's Order #19 [4].

[1] The KLMN Image Library is a hierarchical digital filing system stored on the KLMN file servers. The image library is linked to an image database that stores metadata on each image.
[2] NPS Data Store is a clearinghouse for natural resource data and metadata (http://science.nature.nps.gov/nrdata). Only non-sensitive information is posted to NPS Data Store. Refer to the protocol section on sensitive information for details.
[3] NatureBib is the NPS bibliographic database (http://www.nature.nps.gov/nrbib/index.htm). This application has the capability of storing and providing public access to image data (e.g., PDF files) associated with each record.
[4] NPS Director's Order 19 provides a schedule indicating the amount of time that the various kinds of records should be retained. Available at: http://data2.itc.nps.gov/npspolicy/DOrders.cfm.
[5] The KLMN Landbird project folder located on the shared file server at the KLMN office. The project folder contains five folders including: Landbird_Documents, Landbird_Data, Landbird_Analysis, Landbird_GIS, and Landbird_Image used to separate and store data and information collected as part of the landbird monitoring.

References

Mohren, S. R. 2007. Data management plan, Klamath Inventory and Monitoring Network. Natural Resource Report NPS/KLMN/NRR—2007/012. National Park Service, Fort Collins, Colorado.

SOP #16: Data Transfer, Storage, and Archive (continued).

KLMN Certification Form

1) Certification date: _____

2) Certified by: _____
Title: _____
Affiliation: _____

3) Agreement code: _____
Project title: _____

4) Range of dates for certified data: _____

5) Description of data being certified: _____
_____
_____
_____

6) List the parks covered in the certified data set, and provide any park-specific details about this certification.

Park	Details

7) This certification refers to data in accompanying files. Check all that apply and indicate file names (folder name for images) to the right:

_____ Hardcopy Datasheet(s): _____
_____ PDF Datasheet(s): _____
_____ Database(s): _____
_____ Spreadsheet(s): _____
_____ Spatial data theme(s): _____
_____ GPS file(s): _____
_____ Geodatabase file(s): _____
_____ Photograph(s): _____
_____ Data Logger(s) files: _____
_____ Other (specify): _____

SOP #16: Data Transfer, Storage, and Archive (continued).

_____ Certified data are already in the master version of a park, KLMN or NPS database. Please indicate the database system(s): _____

8) Is there any sensitive information in the certified data which may put resources at greater risk if released to the public (e.g., spotted owl nest sites, cave locations, rare plant locations)?

_____ No _____ Yes Details:

_____
_____
_____

9) Were all data processing and quality assurance measures outlined in the protocol followed?

Yes / No

If No, Explain _____
_____
_____

10) Who reviewed the products?
_____

11) Results and summary of quality assurance reviews, including details on steps taken to rectify problems encountered during data processing and quality reviews.
_____
_____
_____